

**REMARKS/ARGUMENTS**

In the specification, the Abstract of the Disclosure and paragraphs [0002], [0003], [0006], [0008]-[0011], [0013], [0015], [0018], [0020], [0022], [0024]-[0030], [0035], [0038]-[0041], and [0043] have been amended to correct minor grammatical issues. No new matter has been added herein.

The Office Action mailed April 6, 2006, has been received and reviewed. Claims 1 through 26 are currently pending in the application. Claims 1 through 22 stand rejected. Claims 23 through 26 have been withdrawn from consideration. Applicants have amended claims 1-4, 7-10, 15-18, and 19-22, and respectfully request reconsideration of the application as amended herein.

**Claim Objections**

Claims 1-22 were objected to for various informalities. Applicants have amended claims 1, 7, 8, 15, and 19-22 to include each of the corrections to the informalities proposed by in the Office Action. Therefore, Applicants respectfully request the objections of claims 1-22 be withdrawn.

**35 U.S.C. § 112 Claim Rejections**

**First Paragraph**

Claims 2, 8, 9, 11, 12, 17, and 21 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse this rejection, as hereinafter set forth.

The Office Action rejects claims 2, 9, 17, and 21 under 35 U.S.C. § 112, first paragraph, because the specification recites a “tool or mask to be about eight-tenths of the wavelength **divided by the numerical aperture**” while claims 2, 9, 17, and 21 recite a claim limitation of “the diffraction ring is about eight-tenths of the wavelength ...” (Office Action, p. 4; emphasis

added.) Applicants have amended claims 2, 9, 17, and 21 to include the claim limitation of “divided by a numerical aperture”. Accordingly, Applicants respectfully request the rejection of claims 2, 9, 17, and 21 be withdrawn.

The Office Action rejects claim 8 under 35 U.S.C. § 112, first paragraph, because the claim 8 recites the claim limitation of a “centroid”, however, the Office Action alleges the mathematical description of “centroid” is not found to be adequately supported in the specification. (Office Action, p. 5).

While the specification of the above-referenced application does not use the term “centroid,” as recited in claim 8, one of ordinary skill in the art would readily understand that use of the specification of the above-referenced application provides graphical illustrations of relationships of circles, etc.. The Office Action states, “a “centroid” of the mathematical description of one of the elements (66 in Figure 10) is not found to be adequately supported in the specification.” (Office Action, p. 5). Applicants respectfully disagree. Regarding Applicants’ use of the term “centroid,” the term is a common term used to identify a center of mass location within a geometric shape, generally irregular geometric shapes. Applicants’ various figures illustrate “centroids” with respect to circles and are more commonly known as “centers.” However, for non symmetric shapes, the concept of “centroid” takes into consideration the distribution of area in the calculation of such a “center.” Applicants respectfully request that the term at least be given its “ordinary meaning” and the understanding of the term as is know by those of ordinary skill in the art.

Accordingly, it is respectfully submitted that claim 8 complies with the enablement requirement of 35 U.S.C. § 112, first paragraph, and requested that the 35 U.S.C. § 112, first paragraph, rejection of claim 8 be withdrawn.

### **Second Paragraph**

Claims 1 through 14, 16, 18, and 20 through 22 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention. Applicants respectfully traverse this rejection, as hereinafter set forth.

### Claim 1

The Office Action asserts:

In claim 1, the phrase “method for mitigating sidelobe artifacts in a radiation-patterning **process**” (emphasis added) in the preamble (lines 1-2) does not correspond with the body of this claim, which recites “defining elements to be formed in a radiation-patterning tool ...” (lines 3-4), “calculating a diffraction ring about each of the elements” (line 5), “identifying at least one location ...” (lines 6-7), and “forming at least one sidelobe inhibitor ...” (line 8). For the purpose of this Office action, the above phrase in lines 1-2 has been interpreted to mean –method for mitigating sidelobe artifacts in a radiation-patterning **tool design process**—(emphasis in original). (Office Action, pp. 5-6).

Applicants have amended claim 1 to recite the preamble as suggested. Applicants respectfully request the rejection be withdrawn.

### Claim 1

The Office Action alleges:

In claim 1 line 4 and in claim 7 lines 4-5, the phrase “to create desired patterns **and** resultant sidelobes” (emphasis added) seems to suggest creating desired sidelobes that does not correspond with either (A) the earlier stated intention for mitigating sidelobe artifacts (in claim 1 line 1) by forming at least on sidelobe inhibitor (in claim 1 line 8) nor (B) the recited generating or forming of sidelobe inhibitors (in claim 7 lines 1 and 13). For the purpose of this Office action, the above phrase in claim 1 line 4 and claim 7 lines 4-5 has been interpreted to mean – to create desired patterns **[[and]] without** resultant sidelobes--, at both occurrences. Claims 2-6 depend on claim 1 and claims 8-14 depend on claim 7. (Office Action, p. 6).

Applicants respectfully disagree with the alleged confusion as asserted in the Office Action. Applicants’ claim 1 as presently amended recites, in part:

1. A method for *mitigating sidelobe* artifacts in a radiation-patterning tool design process, comprising:  
defining elements to be formed in a radiation-patterning tool as a function of a wavelength of radiation to be used *to create desired patterns and resultant*

*sidelobes*;  
calculating a diffraction ring around each of the elements;  
identifying at least one location where one diffraction ring from one of the elements intersects another diffraction ring from another of the elements; and  
forming at least one sidelobe inhibitor across the at least one location. (Emphasis added.)

Applicants' invention as claimed lists the preamble to recite "mitigating sidelobe artifacts" rather than completely removing all sidelobe artifacts. Therefore, Applicants' invention as presently claimed is drawn to "create desired patterns and resultant sidelobe".

Therefore, Applicants respectfully request the rejections be withdrawn.

#### **Claims 3, 10, 18, and 22**

The Office Action asserts:

In claims 3, 10, 18, and 22, it is unclear whether the "dimensions" of the sidelobe inhibitor(s) are meant to refer to (1) the length for the sides of each sidelobe inhibitor 77 (indicating that each sidelobe inhibitor 77 is square in shape as shown in Figure 10) or (2) some other measurement of each sidelobe inhibitor 77 (such as the diagonal of each square sidelobe inhibitor 77 shown in Figure 10). For the purpose of this Office action, the "dimensions" of the sidelobe inhibitor(s) in claims 3, 10, 18, and 22 have been interpreted in accordance with (1) above, to mean – side dimensions-. (Office Action, p. 6)

Applicants have amended claims 3, 10, 18, and 22 to recite "side dimensions" as suggested. Applicants respectfully request the rejections be withdrawn.

#### **Claims 4 and 16**

The Office Action alleges:

In claims 4 line 4-6, it is unclear whether "overlap range" was intended to be (3) an overlap range of adjacent diffraction rings 70 shown in Figure 10 as described in [0039] lines 5-8 or (4) a guard ring (102 or 104) extending around each of the plurality of locations (92 and 94) shown in Figure 12A as described in [0042]. For the purpose of this Office action, "overlap range" in lines 4-6 of claim 4 has been interpreted to mean –~~overlap range~~ guard ring—, in accordance with (4) above. Also for the purpose of this Office action, the phrase "the locations" in claim 4 lines 4-7 have been interpreted (at all four occurrences) as being corrected to –the plurality of

locations--, in order to better correspond with the antecedent basis for this phrase “plurality of locations” found in claim 4 line 2. Similar problems were also found in claim 16, so for the purposes of this Office action corresponding changes have been interpreted as being made in claim 16, as well. (Office Action, pp. 6-7)

Applicants respectfully disagree with the Office Action’s characterization and proposed interpretation of “overlap range” as presently claimed. The Office Action, by interpreting Applicants’ “overlap range” as a “guard ring” introduces a term having no antecedent in the claim as currently amended nor as originally presented. Applicants’ use of the term “overlap range” and now as amended to “overlapping area” to be consistent with Applicants’ specification is described with reference to Applicants’ paragraph [0042] as acknowledged by the Office Action; which are clear, concise, and exact when read in view of Applicants’ specification. Therefore, Applicants respectfully request the rejection of amended claims 4 and 16 be withdrawn.

The Office Action asserts:

Also in claim 4 at lines 8-9, the phrase “forming sidelobe inhibitors across at least a portion of the locations and the common locations” is not fully consistent with the previous recitations of claim 4 (shown by Figure 12A as interpreted above). For the purpose of this Office action the above phrase in lines 8-9 of claim 4 has been interpreted to mean –forming the at least one sidelobe inhibitor[[s]] across at least a portion of the plurality of locations [[and]] or the common locations[[s]]--.. Again, similar problems were also found in claim 16, so for the purpose of this Office action corresponding changes have been interpreted as being made in claim 16, as well. (Office Action, p. 7).

Applicants have amended claims 4 and 16 as suggested. Applicants respectfully request the rejections be withdrawn.

The Office Action alleges:

In order to address the similar problems found in claim 16 in relation to those in claim 4 as mentioned above, claim 16 line 3-7 have been interpreted as follows: --defining ~~an overlap range~~ a guard ring extending around each of the plurality of intersections; defining a common intersection in lieu of each of the plurality of intersections when a portion of ~~an overlap range~~

the guard ring extending from one of the plurality of intersections is common with a portion of ~~an overlap range~~ the guard ring extending from another one of the plurality of intersections; and forming a sidelobe inhibitor[[s]] across at least a portion of each of the plurality of intersections ~~[[and]] or across--~~. (Office Action, p. 7).

Applicants respectfully disagree with the continued introduction in the Office Action of the concept and term of a “guard ring.” Applicants’ claims include no such term nor have Applicants amended the claims to include such terms. As stated, Applicants have amended claims 4 and 16 to change the terminology of “overlap range” to now recite “overlapping area” to more closely coincide with Applicants’ specification. Applicants respectfully request the rejections be withdrawn.

#### **Claim 7**

The Office Action alleges:

In claim 7 lines 13-14, it is unclear how plural sidelobe inhibitors would be formed on “the radiation-patterning tool corresponding to at least **one** of the mathematical descriptions of locations” (emphasis added). For the purpose of this Office action and to better correspond with Figure 10 as described in [0039], this recitation in claim 7 lines 13-14 has been interpreted to mean that plural sidelobe inhibitors would be formed on – the radiation-patterning tool ~~corresponding to~~ with one of the plural sidelobe inhibitors at least one each of *two* or more of the mathematical descriptions of locations—(emphasis added). (Office Action, p. 8).

Applicants have amended claim 7 generally as suggested, however, Applicants have amended “sidelobe inhibitors” to recited “at least one sidelobe inhibitor”. Applicants respectfully request the rejection be withdrawn.

#### **Claim 9**

The Office Action alleges:

In claim 9, it is unclear whether or not “a radius” (emphasis added) in line 1 is the same as that recited in claim 8 (on which claim 9 depends) and the phrase “the mathematical description of diffraction ring” in lines 1-2 does not correspond with the immediately preceding antecedent basis for this phrase found in claim 8. However, for the purpose of this Office action and in order to advance the prosecution of this application these portions

of claim 9 in lines 1-2 have been interpreted to mean –[[a]] the radius of each of the mathematical descriptions of diffraction rings—(emphasis added). (Office Action, p. 8).

Applicants have amended claim 9 as suggested, however. Applicants respectfully request the rejection be withdrawn.

### **Claims 11 and 12**

The Office Action alleges:

In claims 11-12, it is uncertain whether the “predefined threshold” (found in claim 11 lines 4-5 and claim 12 lines 1-2) with regard to the proximity of two or more sidelobe inhibitors (77 in Figure 10) is meant to be measured between (5) the closest outer edges or (6) the centers of the “more proximate” sidelobe inhibitors, so that the “predefined threshold” for the proximity is about half to about one of the defined wavelength of radiation (claim 12,  $\lambda/2$  to  $\lambda$ ). For the purpose of this Office action and in order to afford the broadest reasonable interpretation to claims 11-12, the “predefined threshold” has been interpreted to mean either (5) or (6) as set forth above. (Office Action, p. 8).

Applicants respectfully disagree with the assertion that there is uncertainty regarding the “predefined threshold”, as claimed by Applicants. Applicants’ claims are presently presented recite a predetermined threshold for proximate one or more sidelobe inhibitors resulting in “identifying a common sidelobe inhibitor in lieu of the one ore more sidelobe inhibitors.” Applicants respectfully request the rejections be withdrawn.

### **Claim 20**

The Office Action alleges:

In claim 20, the recitation of three separate “identifying” steps (in lines 2, 3, and 5) is confusing and unclear about which of these steps refers back to the “identifying the intersect” in claim 19 line 8 (on which claim 20 depends). (Office Action, p. 9).

Applicants respectfully assert that the preamble of claim 20 recites “The computer-readable medium of claim 19, wherein identifying comprises” can only refer to the single “identifying” step in claim 19, which, in claim 20, now comprises the two “identifying” steps as

claimed. However, to further clarify, Applicants have amended claim 20 to recite “the identifying the intersect comprises”. Applicants respectfully request the rejection be withdrawn.

### **Claim 21**

The Office Action alleges:

In claim 21, it is unclear whether or not the phrase “calculating a diffraction ring includes calculating a diffraction ring having a radius” line 2 was meant to refer back to the same step of calculating a diffraction ring in claim 19 line 4 (on which claim 21 depends). However, for the purpose of this Office action, this phrase in line 2 of claim 21 has been interpreted to mean the calculating a diffraction ring includes calculating that for a diffraction ring having a radius--. (Office Action, p. 9).

Applicants respectfully assert that the preamble of claim 21 recites “The computer-readable medium of claim 19, wherein calculating a diffraction ring includes” can only refer to the single “calculating” step in claim 19, which, in claim 21, now includes “calculating a diffraction ring having a radius of ... .” However, to further clarify, Applicants have amended claim 21 to recite “the calculating a diffraction ring includes”. Applicants respectfully request the rejection be withdrawn.

### **35 U.S.C. § 102(b) Anticipation Rejections**

#### Anticipation Rejection Based on U.S. Patent No. 5,700,601 to Hasegawa et al.

Claims 1 through 3, 5 through 10, 13 through 15, 21 and 22 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Hasegawa et al. (U.S. Patent No. 5,700,601). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The 35 U.S.C. § 102(b) anticipation rejections of claims 1 through 3, 5 through 10, 13 through 15, 21 and 22 are improper because the Hasegawa reference does not describe, either



expressly or inherently, the identical inventions in as complete detail as are contained in the claims.

Applicants independent claims 1, 7, 15, and 19, as presently amended, recite:

1. A method for mitigating sidelobe artifacts in a radiation-patterning tool design process, comprising:

defining elements to be formed in a radiation-patterning tool ...;

calculating a diffraction ring ...;

identifying at least one location ...; and

***forming at least one sidelobe inhibitor*** across the at least one location, the sidelobe inhibitor ***being located to pass radiation in phase with the radiation passing through the elements.***

7. A method of generating sidelobe inhibitors on a radiation-patterning tool, comprising:

defining elements to be formed in a radiation-patterning tool ...;

forming a mathematical description ...;

defining a mathematical description ...;

identifying mathematical descriptions ...; and

***forming at least one sidelobe inhibitor*** on the radiation-patterning tool with one of the at least one sidelobe inhibitor at the at least one of the mathematical descriptions of locations, the at least one sidelobe inhibitor ***being located to pass radiation in phase with the radiation passing through the elements.***

15. A method for designing a mask for illuminating a pattern, comprising:

defining elements to be formed in the mask;

calculating a diffraction ring ...; and

***forming a sidelobe inhibitor*** at least one intersection where a diffraction ring from one of the elements intersects a diffraction ring from another of the elements, the sidelobe inhibitor ***being located to pass radiation in phase with the radiation passing through the elements.***

19. A computer-readable medium having computer-executable instructions thereon for determining the placement of sidelobe inhibitors relative to elements to be formed on a radiation-patterning tool, comprising:

calculating a diffraction ring ...;

calculating an intersect ...; and

***identifying the intersect as a location to place one of the sidelobe inhibitors, each of the sidelobe inhibitors being located to pass radiation in phase with the radiation passing through the elements.***

Applicants' invention as presently claimed in amended independent claims 1, 7, 15, and 19, and respective claims 2, 3, 5, 6, 8-10, 13, 14, 17, 18, 21, and 22 depending therefrom, recites sidelobe inhibitors located to pass radiation in phase with the radiation passing through the elements.

In contrast, the Hasegawa reference specifically discloses a "photomask used for printing a mask pattern by projection optics, in which a *main pattern formed* on a transparent area is provided in a semitransparent area formed *of a semitransparent film and a phase shifter*, the *phase angles of light beams passing through respective areas are different from each other substantially be 180°.*" (Hasegawa Abstract; emphasis added.) The Hasegawa reference is replete and consistent with such descriptions of some patterns including phase shifters and other openings passing the light or radiation without any phase manipulation.

Specifically, the Hasegawa reference discloses:

... a semitransparent area and a transparent area for at least exposure light, in which the phase angle of a light beam passing through the semitransparent area is different from the phase angle of a light beam passing through the transparent area substantially by 180° ... (Hasegawa, col. 3, lines 23-27).

... by arrangement of an auxiliary pattern at an optimum position around a main pattern of a photomask in which the phase angle of a light beam passing through the transparent main pattern is inverted from that of a light beam passing through a semitransparent portion disposed around the main pattern, it becomes possible to suppress a reduction in the light intensity of the main pattern even when the focus is shifted upon pattern printing, and hence to avoid a reduction in the pattern size and resolution failure due to being out of focus. (Hasegawa, co. 4, lines 16-25).

Since the Hasegawa reference does not disclose sidelobe inhibitors "being located to pass radiation in phase with the radiation passing through the elements" as claimed by Applicants, the Hasegawa reference cannot anticipate under 35 U.S.C. §102 Applicants' invention as presently claimed in amended independent claims 1, 7, 15, 19 and respective claims 2, 3, 5, 6, 8-10, 13, 14, 17, 18, 21, and 22 depending therefrom. Accordingly, such claims are allowable over the cited prior art and Applicants respectfully request that such rejections be withdrawn.

### 35 U.S.C. § 103(a) Obviousness Rejections

#### Obviousness Rejection Based on U.S. Patent No. 5,700,601 to Hasegawa et al.

Claims 1 through 3, 5 through 10, 13 through 15, 21 and 22 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hasegawa et al. Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 1 through 3, 5 through 10, 13 through 15, 21 and 22 are improper because the elements for a *prima facie* case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art reference must teach or suggest all the claims limitations.

Applicants sustain the above-proffered arguments regarding the lack of teaching or suggestion in the Hasegawa reference. Since the Hasegawa reference does not teach or suggest sidelobe inhibitors "being located to pass radiation in phase with the radiation passing through the elements" as claimed by Applicants, the Hasegawa reference cannot render obvious under 35 U.S.C. § 103 Applicants' invention as presently claimed in amended independent claims 1, 7, 15, 19 and respective claims 2, 3, 5, 6, 8-10, 13, 14, 17, 18, 21, and 22 depending therefrom. Accordingly, such claims are allowable over the cited prior art and Applicants respectfully request that such rejections be withdrawn.

Obviousness Rejection Based on U.S. Patent No. 5,700,601 to Hasegawa et al., in view of U.S. Patent No. 5,700,606 to Kobayahsi et al.

Claims 4, 11, 12, 16, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hasegawa et al. (U.S. Patent No. 5,700,601) in view of Kobayashi et al (U.S. Patent No. 5,700,606). Applicants respectfully traverse this rejection, as hereinafter set forth

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 4, 11, 12, 16, and 20 are improper because the elements for a prima facie case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art reference must teach or suggest all the claims limitations.

Regarding claim 4 (depending from amended independent claim 1), claims 11-12 (depending from amended independent claim 7), claim 16 (depending from amended independent claim 15), and claim 20 (depending from amended independent claim 19), Applicants have amended independent claims 1, 7, 15, and 19 to include claim limitations not taught or suggested in the cited references.

Applicants herein sustain the above-proffered arguments relating to lack of teaching or suggestion in the Hasegawa reference of sidelobe inhibitors "being located to pass radiation in phase with the radiation passing through the elements" as claimed by Applicants. The Office Action cites the Kobayashi reference for teaching or suggesting "examples of overlapping/intersecting diffraction rings 12" (Office Action, p. 12).

Even assuming the Kobayashi reference so teaches or suggests, neither of the cited references, either individually or in any proper combination, teach or suggest Applicants' claimed invention including elements of sidelobe inhibitors "being located to pass radiation in phase with the radiation passing through the elements". Therefore, such references either individually or in any proper combination, cannot render obvious under 35 U.S.C. §103 Applicants' invention as presently claimed. Accordingly, Applicants respectfully request the rejection of claims 4, 11, 12, 16, and 20 be withdrawn.

Furthermore, the nonobviousness of independent claims 1, 7, 15, and 19 preclude a rejection of claims 4, 11, 12, 16, and 20 which respectively depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, the Applicants request that the Examiner withdraw the 35 U.S.C. § 103(a) obviousness rejection to independent claims 1, 7, 15, and 19 and claims 4, 11, 12, 16, and 20 which depend therefrom.

**Double Patenting Rejection Based on U.S. Patent No. 6,807,519.**

**Claims 1 through 3, 5 through 10, 13 through 15, 17 through 19, 21 and 22** stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 6-12, 14-18, 20, 22, 24, 25, 35-38, and 43-46 of U.S. Patent No. 6,807,519 to Stanton, in view of U.S. Patent No. 5,700,601 to Hasegawa et al.

Applicants acknowledge the obviousness-type double patenting rejection and respectfully request that the examiner hold the requirement for a terminal disclaimer in abeyance and reconsider the obviousness-type double patenting rejection after examination on the merits of all claims in the present application. At that point, if the Examiner still believes an obviousness-type double patenting rejection is appropriate, Applicants will reconsider filing a terminal disclaimer to obviate the double patenting rejections in compliance with 37 CFR § 1.321 (b) and (c).

**Claims 4, 11, 12, 16, and 20** stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 6-12, 14-18, 20, 22, 24, 25, 35-38, and 43-46, of U.S. Patent No. 6,807,519 to Stanton, in view of U.S. Patent No. 5,700,601 to Hasegawa et al., and further in view of U.S. Patent No. 5,700,606 to Kobayashi et al.

Applicants acknowledge the obviousness-type double patenting rejection and respectfully request that the examiner hold the requirement for a terminal disclaimer in abeyance and reconsider the obviousness-type double patenting rejection after examination on the merits of all claims in the present application. At that point, if the Examiner still believes an obviousness-type double patenting rejection is appropriate, Applicants will reconsider filing a terminal disclaimer to obviate the double patenting rejections in compliance with 37 CFR § 1.321 (b) and (c).

**Double Patenting Rejection Based on copending U.S. Application Publication No. 2005/0049839**

**Claims 1 through 3, 5 through 10, 13 through 15, 17 through 19, 21 and 22** stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 51-61 of copending U.S. Application Publication No. 2005/0049839 to Stanton, in view of U.S. Patent No. 5,700,601 to Hasegawa et al.

Applicants acknowledge the obviousness-type double patenting rejection and respectfully request that the examiner hold the requirement for a terminal disclaimer in abeyance and reconsider the obviousness-type double patenting rejection after examination on the merits of all claims in the present application. At that point, if the Examiner still believes an obviousness-type double patenting rejection is appropriate, Applicants will reconsider filing a terminal disclaimer to obviate the double patenting rejections in compliance with 37 CFR § 1.321 (b) and (c).

**Claims 4, 11, 12, 16, and 20** stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 51-61 of copending U.S. Application Publication No. 2005/0049839 to Stanton, in view of U.S. Patent No. 5,700,601 to Hasegawa et al., and further in view of U.S. Patent No. 5,700,606 to Kobayashi et al.

Applicants acknowledge the obviousness-type double patenting rejection and respectfully request that the examiner hold the requirement for a terminal disclaimer in abeyance and reconsider the obviousness-type double patenting rejection after examination on the merits of all claims in the present application. At that point, if the Examiner still believes an obviousness-type double patenting rejection is appropriate, Applicants will reconsider filing a terminal disclaimer to obviate the double patenting rejections in compliance with 37 CFR § 1.321 (b) and (c).



Serial No. 10/609,097

### CONCLUSION

Claims 1-22 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,

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